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ABSTRACT

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Scholastic Achievement and Demographic Characteristics of Home School Students in 1998

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Abstract

This report presents the results of the largest survey and testing program for students in home schools to date. In Spring 1998, 20,760 K-12 home school students in 11,930 families were administered either the Iowa Tests of Basic Skills (ITBS) or the Tests of Achievement and Proficiency (TAP), depending on their current grade. The parents responded to a questionnaire requesting background and demographic information. Major findings include: the achievement test scores of this group of home school students are exceptionally high--the median scores were typically in the 70th to 80th percentile; 25% of home school students are enrolled one or more grades above their age-level public and private school peers; this group of home school parents has more formal education than

parents in the general population; the median income for home school families is significantly higher than that of all families with children in the United States; and almost all home school students are in married couple families. Because this was not a controlled experiment, the study does not demonstrate that home schooling is superior to public or private schools and the results must be interpreted with caution. The report clearly suggests, however, that home school students do quite well in that educational environment.

By current estimates, there are between 700,000 and 1,200,000 students enrolled in home schools in the United States. Further, by all accounts, the movement has been growing steadily over the past few years (Lines, 1998). Yet, there is very little scientific literature concerning the population of home school students or even large samples of home school students.

This study describes the academic achievement levels and some basic demographic characteristics of a large sample of students and their families. While the academic levels of home school students are described in terms of public and private school norms, this study is not a comparison of home schools with public or private schools. Such comparisons would be fraught with problems. Home schooling is typically one-on-one. Public schools typically have classes with 25 to 30 students and an extremely wide range of abilities and backgrounds. Home school parents are, by definition, heavily involved in their children's education; the same, unfortunately, is not true of all public or private school parents. Home schools can easily pace and adapt their curriculum; public and private schools typically have a mandated scope and sequence. The list of differences could continue.

This study seeks to answer a much more modest set of questions: Does home schooling tend to work for those who chose to make such a commitment? That is, are the achievement levels of home school students comparable to those of public school students? Who is engaged in home schooling? That is, how does the home school population differ from the general United States population?

Methods

Bob Jones University Press Testing and Evaluation Service provides assessment services to home school students and private schools on a fee-for-service basis. In Spring 1998, 39,607 home school students were contracted to take the Iowa Tests of Basic Skills (ITBS; grades K-8) or the Tests of Achievement and Proficiency (TAP; grades 9-12). Students were given an achievement test and their parents were asked to complete a questionnaire entitled "Voluntary Home School Demographic Survey." A total of 20,760 students in 11,930 families provided useable questionnaires with corresponding achievement tests. The achievement test and questionnaire results were combined to form the dataset used in this analysis.

This section provides descriptions of the achievement measures, the questionnaires, the Bob Jones University Press Testing and

Evaluation Service, and the procedures used to develop the dataset.

Iowa Tests of Basic Skills (ITBS)

Home schooled students in Grades K-8 took the Iowa Tests of Basic Skills (ITBS) Form L, published by Riverside Publishing Company, a subsidiary of Houghton Mifflin. Developed by University of Iowa professors, the tests were designed and developed to measure skills and standards important to growth across the curriculum in the nation's public and private schools.

The ITBS reflects more than 50 years of test development experience and research on measuring achievement and critical thinking skills in Reading, Language Arts, Mathematics, Social Studies, Science, and Information Sources. The scope and sequence of the content measured by the ITBS were developed after careful review of national and state curricula and standards, current textbook series and instructional materials, and research (Riverside, 1993).

All items were tried out and tested for ethnic, cultural, and gender bias and fairness prior to the development of the final form of the tests. Data on a nationally representative sample of public and private schools were collected in 1992 and used to form the initial national norms. The norms were updated in 1995 by Riverside. This study used these 1995 spring norms.

Tests of Achievement and Proficiency (TAP)

Home schooled students in Grades 9-12 took the Tests of Achievement and Proficiency (TAP), Form L, also published by Riverside Publishing Company. The TAP was designed and developed to measure skills and standards important to growth across the high school curriculum. Like the ITBS, the TAP scope and sequence were developed after careful review of national and state curricula and standards, and current textbook series and instructional materials. Developed as an upward extension of the ITBS, the specifications, format, and design of the TAP tests are similar to that of the ITBS. TAP is fully articulated with the Iowa Tests of Basic Skills (ITBS) Form L (Riverside, 1993).

Background Questionnaires

Background questionnaires were designed by the staff of the Home School Legal Defense Association (HSLDA). Questions were determined by reviewing the questions in previous surveys, prioritizing them, and selecting only those that were most germane to the objectives of the study. Where possible, questions and responses were made to match those used by the U.S. Census, U.S. Department of Labor and the National Assessment of Educational Progress to facilitate comparisons of home school students with students nationwide.

HSLDA designed the survey to be much shorter than previous

survey instruments. They also sought to pose all questions in an objective format, rather than a constructed response format. In keeping with this approach, HSLDA worked with National Computer Systems to design forms to be computer scanable, thereby removing the need for manual data processing.

Bob Jones University Press Testing and Evaluation Service

The Bob Jones University (BJU) Press Testing and Evaluation Service is the largest and oldest of four organizations providing home school families access to standardized achievement tests. The Testing Service began offering the Iowa Tests of Basic Skills and Tests of Achievement and Proficiency in 1984. In subsequent years they added other helpful tools including practice materials, a personality inventory, and diagnostic tests. In 1993, the Stanford Achievement Test series was added as BJU Press assumed the testing that the Home School Legal Defense Association had been providing for its members. Since that time, a full range of writing evaluations (grades 3-12) and a career assessment have been added to the growing number of evaluation tools offered by the Testing Service.

Just as home school families were the impetus behind the start of the Testing Service, home school families continue to be the largest sector utilizing the service. However, there are also a number of private schools that have chosen to use the services provided. Testing is provided for students throughout the United States and Canada, as well as many foreign countries.

The BJU Press Testing and Evaluation Service sends testing materials to qualified testers who administer the tests and return them to the Testing Service for scoring. The results are then returned to the parent. Many parents test primarily for their own information to verify that their home schooled students are progressing academically at a normal pace. Other parents use the results to meet a state testing requirement or to provide documentation when they choose to return their students to a public or private school setting.

Data Generation Procedures

The following steps were followed to produce the data set:

1. Parents contracted with Bob Jones University to be administered the Iowa Tests of Basic Skills or the Tests of Achievement Proficiency (39,607 students in probably 22,000 families).
2. Bob Jones certified test administrators, many of whom were the students' parents.
3. BJU sent questionnaires and answer forms to the test administrators.
4. Tests and questionnaires were returned to BJU. BJU bundled the tests and sent them to Riverside Publishers for machine scoring. BJU bundled the questionnaires and sent them to National Computer Systems for scanning. Unlike in previous studies, the

parents did not know their scores ahead of time.

5. Electronic copy of the 23,415 test results and 23,311 questionnaire results were sent to the author of this report. These sets were merged to provide 20,900 cases with matching identification numbers. In order to weight by state public school enrollment, 140 cases with missing state data were dropped. A total of 20,760 students formed the initial dataset used in the study. After we formed the dataset with 20,760 students, we asked for the remainder of the 39,607 achievement test scores. We were informed that it would not be possible to disaggregate the remaining home school students from students in private schools also contracting testing services.

Characteristics of Home School Students and Families

This section provides a description of home school students and their families based on the 20,790 respondents to our questionnaire. The distribution of students by state, gender, age, race, parent marital status, family size, mother's religion, parent education, family income, television viewing, money spent on educational materials, and other demographic characteristics are identified and, where possible, compared to national figures.

State

As shown in Table 2.1, respondents came from each of the fifty states. Several states, including Ohio, Georgia, and Virginia, have exceptionally high representation given their size. This is probably due to the fact that these states require testing of home school students. To reduce the effects of these and other overrepresented states, the data were weighted in all subsequent analyses by the number of public school students in each state. While we would have preferred to weight by the number of home schooled students in each state, such data are not available for all 50 states (Lines, 1998).

Table 2.1
Participating Home
School Students Classified by State

State	Freq.	Percent of sample	State	Freq.	Percent of sample
AK	61	.3%	MT	112	.5
AL	181	.9	NC	972	4.7
AR	42	.2	ND	100	.5
AZ	201	1.0	NE	126	.6
CA	815	3.9	NH	176	.8
CO	810	3.9	NJ	324	1.6
CT	54	.3	NM	189	.9
DC	17	.1	NV	53	.3
DE	28	.1	NY	942	4.5
FL	860	4.1	OH	2484	11.9
GA	1547	7.4	OK	382	1.8
GU	10	.0	OR	67	.3
HI	112	.5	PA	532	2.6
IA	234	1.1	PR	8	.0
ID	28	.1	RI	32	.2
IL	451	2.2	SC	579	2.8
IN	533	2.6	SD	27	.1
KS	319	1.5	TN	322	1.5
KY	163	.8	TX	1126	5.4
LA	551	2.7	UT	35	.2
MA	343	1.6	VA	1608	7.7
MD	196	.9	VI	2	.0
ME	109	.5	VT	59	.3
MI	523	2.5	WA	787	3.8
MN	794	3.8	WI	246	1.2
MO	361	1.7	WV	92	.4
MS	25	.1	WY	40	.2

Student Age and Gender

Table 2.2 shows the distribution of the respondents by gender and age. About 50.4% or 10,471 of the respondents were females; 49.6% (10,319) were males. These figures are comparable to that of the population of 3 to 34 years old enrolled in school (see U.S. Bureau of the Census, 1998, Table A-2). Some 51.4% of school enrollees nationally are male. The percentages are comparable at all age levels.

Table 2.2
Participating Home School Students
Classified by Gender and Age

	Age at time of testing (in years)											
	6	7	8	9	10	11	12	13	14	15	16	17
Females	507	879	1148	1318	1301	1248	1049	936	774	516	264	119
	56.1%	51.7%	50.2%	49.2%	52.4%	50.6%	47.2%	50.5%	50.7%	51.0%	49.3%	57.5%
Males	397	820	1141	1360	1181	1216	1174	918	754	495	271	88
	43.9%	48.3%	49.8%	50.8%	47.6%	49.4%	52.8%	49.5%	49.3%	49.0%	50.7%	42.5%
Total	904	1699	2289	2678	2482	2464	2223	1854	1528	1011	535	207

Student Grade

Home school student grade placement was identified by their parents, presumably based on the grade level of the instructional materials. That grade was used by BJU to determine the test levels and used in this report as a grouping variable. Tables 2.3 shows the distribution of respondents and the nation by grade. There is a large difference in the proportions of high school (grades 9-12) home school students and the nation. Compared to the national data, a relatively small percentage of home school students are enrolled in high school. Possible reasons for this lower participation for high school students may be the relative newness of the home school movement, early graduation from high school, and possibly a desire on the part of some home school parents to enroll their children in a traditional high school. The distributional differences for students in grades 1 through 8 are minor.

Table 2.3
Home School Students Classified by Grade with Percents and National School Percents

	Grade											
	1	2	3	4	5	6	7	8	9	10	11	12
Home school	7.4% (1504)	10.6% (2153)	14.1% (2876)	12.9% (2625)	12.6% (2564)	11.9% (2420)	10.3% (2087)	8.8% (1801)	5.7% (1164)	3.8% (775)	1.6% (317)	0.3% (66)
Nation	9.1%	8.8%	8.9%	8.7%	8.6%	8.7%	8.7%	8.4%	9.0%	7.9%	7.1%	6.3%

National data: US Census, 1997b, Table 254.

Student Race

Table 2.4 shows the racial distribution of home school students in 1998 and for the students enrolled in elementary and secondary public and private schools nationally in 1994. The distributions are quite different. The vast majority of home schooled children are non-Hispanic White. The largest minority groups for home school students (not shown in the table) are American Indians and Asian students who comprise some 2.4% and 1.2% of the home school students, respectively.

Table 2.4
Racial Distribution of Home School Students
And the Nation, in Percents

	White (not Hispanic)	Black (not Hispanic)	Hispanic	Other
Home school	94.0%	0.8%	0.2%	5.0%
Nationwide	67.2%	16.0%	13.0%	3.8%

(National data: USDE, 1996; Indicator 27)

Marital Status

The great majority of home school students are in married couple families. In contrast, only 72% of the families with at least one child enrolled in school nationwide are in married couple families (Bruno and Curry, 1997, Table 19).

Table 2.5
Home School Students
Classified by Parents' Marital Status

Marital Status	Frequency	Percent
Divorced	80	0.7%
Single (never married)	44	0.4
Married	11,335	97.2
Separated	131	1.1
Widowed	55	0.5
Missing data	16	0.1
	11,661	100.0%

Children at Home

Table 2.6 shows the distribution of children in home school families and families with children under 18 nationwide. On average, home school students are in larger families. Nationwide, most families with school-age children (79.6%) have only 1 or 2 children with a mean of about 1.9 children per family. Most home school families (62.1%) have 3 or more children with a mean of about 3.1 children per family.

Table 2.6
Home School Families Classified

by Family Size with National Comparison

Home School Families		Nationwide	
Number of Children	**Percent**	**Number of Children**	**Percent**
1	8.3%	1	40.8%
2	29.6	2	38.8
3	28.6	3	14.3
4	18.6	4 or more	6.1
5	8.4		
6	3.9		
7 or more	2.6		

National Data: US Census, 1997a, Table 77

Mother's Religion

We asked the home school families to identify the religious preference of each student's mother by selecting from a list of 27 religions. As shown in Table 2.7, the largest percentage of mothers identified themselves as Independent Fundamental, Bapist, Independent Charismatic, Roman Catholic, Assembly of God, or Presbyterian. The religious preference of the father was the same as that of the mother 93.1% of the time.

Table 2.7
Home School Students
Classified by Mother's Religion

	Frequency	Percent
Independent Fundamental	5,119	25.1%
Bapist	5,072	24.4
Independent Charismatic	1,681	8.2
Roman Catholic	1,106	5.4
Assembly of God	838	4.1
Presbyterian	772	3.8
Reformed	685	3.4
Other Protestant	500	2.5
Pentecostal	459	2.2
Methodist	420	2.1
Lutheran	353	1.7
Other Christian	2,213	10.9
Other	1,572	6.2
Total	20,790	100.0%

Parent Academic Attainment

As shown in Table 2.8, home school parents have more formal education than the general population. While slightly less than half of the general population attended or graduated from college, almost 88% of home school students have parents who continued their education after high school.

Table 2.8
Distribution of Home School Students and Students Nationally Classified by Parent Academic Attainment

	Percent						
	Did not finish high school	High school graduate	Some college, no degree	Associat degree	Bachelo degree	Masters degree	Doctorate
Home school fathers	1.2%	9.3%	16.4%	6.9%	37.6%	19.8%	8.8%
Nation males	18.1	32.0	19.5	6.4	15.6	5.4	3.1
Home school mothers	0.5	11.3	21.8	9.7	47.2	8.8	0.7
Nation females	17.2	34.2	20.2	7.7	14.8	4.5	1.3

National data: U.S. Census (1996; Table 8)

Family Income

National data on family income are available for 1995. As shown in Table 2.9, home school families span all income levels. On average, home school families have a higher income level than do families with children nationwide and all families nationwide. The median family income level for home school families in 1997 is about $52,000. The median income for families with children in 1995, nationwide, was about $36,000.

Table 2.9
Distribution of Family Income for Home School Families, Families with Children Nationwide, and All Families Nationwide by Income Levels, in Percents.

	Home school	Families with children	All families
Less than $10,000	0.8%	12.6%	10.5%
$10,000 to $14,999	1.5	8.0	8.5
$15,000 to $19,999	2.2	6.1	6.8
$20,000 to $24,999	3.9	7.6	8.4
$25,000 to $29,999	4.9	7.5	7.8
$30,000 to $34,999	8.5	7.5	7.6
$35,000 to $39,999	8.1	7.1	7.0
$40,000 to $49,999	16.0	11.3	11.0
$50,000 to $74,999	32.5	18.4	18.1
$75,000 and over	21.6	13.8	14.3

National data: Bruno and Curry (1997, Table 19)

Television Viewing

The National Assessment of Educational Progress collects information on the television viewing habits of fourth-graders. Home school fourth-graders and fourth-graders nationally differ markedly in terms of television viewing. Home school students rarely watch more than 3 hours of television per day; nearly 40% of the students nationwide watch that much television.

Table 2.10
Fourth-grade students Classified by Hours of Television Viewing

	Percent of students			
	6 or more hours per day	4 to 5 hours per day	2 to 3 hours per day	1 hour or less per day
Home school	0.1%	1.6	33.1	65.3
Nationwide	19.0%	19.5	36.4	25.1

National data: NAEP Math 1997

Computer Use

The *Condition of Education* provides a tabulation of the percent of students nationwide who report using a computer by frequency of use for 4th, 8th, and 11th graders in 1996. At each grade level, the distribution of computer use in 1998 by home school students is different from that of the nation in 1996. At each of these three grade levels, much larger percentages of home school students never use a computer. At the fourth-grade level, a much larger percent of home school students use a computer every day.

Table 2.11
Computer Use among Home School Students and Students Nationwide in Grades 4, 8, and 11, in Percent

	Grade 4		Grade 8		Grade 11	
	Home school	**Nationwide**	**Home school**	**Nationwide**	**Home school**	**Nationwide**
Never	28.2%	11.4%	37.1%	23.3%	40.5 %	16.0%
Less than once a week	29.4	16.3	28.9	29.2	28.9	34.2
Several times a week	21.6	62.5	18.0	30.7	17.5	31.8
Every day	20.8	9.9	16.0	16.7	13.1	18.1

National Data: Snyder and Wirt, 1998, Indicator 3

Money Spent on Educational Materials

The amount of money spent in 1997 on home school education for textbooks, lesson materials, tutoring and enrichment services, and testing ranged from less than $200 to more than $2000. As shown in Table 2.12, the median amount of money spent was about $400.

Table 2.12
Home School Students Classified by Money Spent On Home School Education in 1997

Amount	Frequency	Percent
<$200	3,718	17.9%
200-399	7,035	33.8
400-599	4,467	21.5
600-799	1,962	9.4
800-999	985	4.7
1,000-1,599	1,630	7.8
1,600-1,999	247	1.2
>2,000	411	2.0
Missing	336	1.6
Total	20,790	100.0%

Other Demographic Characteristics

Compared to the nation, a much larger percentage of home school mothers are stay-at-home mothers not participating in the labor force. Some 76.9% of home school mothers do not work for pay. About 86.3% that do work do so part time. Nationwide, in 1996, only 30% of married women with children under 18 did not participate in the labor force (US Dept of Census, 1997a, Table 632).

A very large percentage of home school parents are certified to teach. Some 19.7% of the home school mothers are certified teachers; 7.1% of fathers. Almost one out of every four home school students (23.6%) has at least one parent who is a certified teacher.

Only 7.7% of the respondents were enrolled in a full-service curriculum program, i.e., a program that serves students and their parents as a "one-stop" primary source for textbooks, materials, lesson plans, tests, counseling, evaluations, record keeping, and the like for the year's core required subjects such as language, social studies, mathematics, and science.

Academic Achievement

The complete batteries of The Iowa Tests of Basic Skills (ITBS) and the Tests of Achievement and Proficiency (TAP) were used to assess student achievement in basic skills. The ITBS was used for home school students in Grades K-8; the TAP for students in grades 9-12. Almost all students took Form L; a handful took parallel Form K.

Achievement test batteries like the ITBS and TAP are a collection of tests in

several subject areas that have been standardized and normed. Norms for all tests within these test batteries are based on the same group of students at each grade level. Such norms allow students to be compared with other students and groups to be compared with other groups.

The primary purpose of the ITBS and TAP is to assess the academic achievement of students in public and private schools. Consequently, much of the test development effort is devoted to identifying the content to be covered by these batteries. Riverside Publishers follow a four step process: 1) content specifications, 2) editorial review, 3) pilot testing, and 4) national norms development and updating.

The first and most critical step is developing content specifications and writing test items. This step involves the experience, research, and expertise of a large number of professionals representing a wide variety of specialties in the education community. Specifications are developed which outline the grade placement and emphasis of skills. These specifications draw heavily on an analysis of textbooks, research studies, nationally developed subject matter standards, and national curriculum committees.

Once the items have been developed and pilot tested, the final forms of the tests are developed and administered to large standardization samples to gather normative data and to develop scales.

The spring standardization sample for the 10 levels of the ITBS consisted of approximately 137,000 students from public schools, Catholic schools and private non-Catholic schools. The public school sample was stratified to assure adequate representation based on geographic region, district enrollment, socioeconomic status of the district. The Catholic school sample was stratified on geographic region and diocese enrollment. The non-Catholic private school sample was stratified on region and school type. The spring standardization sample for the four levels of the TAP consisted of approximately 20,000 students stratified on the same variables. National norms were developed based on the combined weighted distributions of all three school types: public, Catholic and non-Catholic private. Catholic/private school norms were developed based on the combined weighted distributions of the latter two groups. For simplicity, the combined public, Catholic and non-Catholic private school norms are referenced in this report as national norms or public/private school norms.

The data from the standardization sample are used to develop a variety of reporting scales, such as percentiles and grade equivalent scores. The analyses in this report rely primarily on the Developmental Standard Score (DSS) scale developed by Riverside Publishers. The DSS is a number that describes a student's location on an achievement continuum that spans grades K through 12. Table 3.1 shows the median DSS and median age that corresponds to each grade level in the national standardization sample. The DSS scale shows that the average annual growth in DSS units decreases each year.

Table 3.1
Median Developmental Scaled Scores and Median Age for the ITBS/TAP Spring National Standardization Sample

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12
DSS	130	150	168	185	200	214	227	239	250	260	268	275	280
Age	6.1	7.2	8.2	9.3	10.2	11.2	12.2	13.2	14.2	15.2	16.2	17.2	18.1

Source for age medians: Drahozal (1998, personal communication)

This same DSS scale is used for all tests and levels of the ITBS and TAP. The main advantages of the DSS are that it mirrors reality well, spans all grade levels, and provides a quasi equal interval scale which has a variety of attractive statistical properties. Most importantly, DSS scores can be compared to each other and can be meaningfully averaged.

The main disadvantage of DSS scores is that they have no built-in meaning. Reference points are needed to interpret DSS scores. "Grade level" is one possible reference point. A DSS score of 170 in reading, for example, is about equal to the typical reading score for second-grade students in public and private schools in the spring of the year. A more refined reference is the percentile score that corresponds to each DSS score. The 170 in *reading*, for example, corresponds to the 54th percentile of second graders. That is, this score is better than the score received by 54 percent of the second graders using the 1995 spring norms.

The reader should note that while all tests of the ITBS/TAP have the same median DSS score at each grade level, the distributions within each subject area vary. A DSS score of 310 for a tenth grader in *reading*, for example, corresponds to the 87th percentile. A DSS score of 170 in *mathematics* for a tenth grader would place the student at the 79th percentile.

Percentiles are always defined in terms of a grade level. This can be problematic when analyzing data for home school students. In this study, 24.5% of the home school students were one or more grades above the grade usually associated with that student's age (see Table 3.2). A strong case can be made that rather than using the percentile corresponding to the enrolled grade, as we did in this study, one should use the percentile associated with the student's nominal grade, i.e., the grade usually associated with the student's age. The argument is that a 10-year-old home school student enrolled in 5th grade should be compared to his age peers in 4th grade. The counter argument is that the percentiles already consider the fact that students are not always in their nominal grade since the standardization sample had students above and below grade level. We initially analyzed the data both ways. Rather than expose our analysis to criticism, we chose to take the more conservative route by employing the enrolled grade.

While very meaningful, percentiles do not provide a complete picture of a student's or group's academic performance. In this study, we used grade equivalent scores as an additional reference point for interpreting DSS scores. A grade equivalent score approximates a child's development in terms of grade and month within grade. A DSS reading score of 170 can be viewed as the typical DSS score earned by students in the ninth month of the second grade or a GES score of 2.9. Just as the percentile associated with a DSS scores varies by subtest, so do the properties of GES scores vary across subjects.

Grade Equivalent Scores are particularly useful for estimating a student's developmental status in terms of grade. But, these scores must be interpreted carefully. An GES Score of 6.3 in reading for an 9 year old in the 3rd grade, for example, clearly indicates that the third grader is doing well. This does not,

however, mean that the third grader belongs in the 6th grade. It only means that the third grader can read as well as a sixth grader.

The usual interpretation of a Grade Equivalent Score of 6.3 for a third grader is that this third grade student can read third grade material as well as a sixth grader can read third grade material, not that he or she can read sixth grade material. The DSS of the ITBS/TAP, however, is unique. The DSS scales were developed by administering the same special scaling test to students in grades K-3, another common scaling test to students in grades 3 to 9, and another to students in grades 8-12. Thus, in the scaling study, the third graders did take the same test as the sixth graders in each subject area.

Grade Placement

Home school students are able to progress through instructional material at the student's rate. Thus, it is easy for home school students to be enrolled one or more grades above their public and private school-age peers. To evaluate the frequency of advanced placement, we compared students' enrolled and nominal grades. The enrolled grade was identified by the parents and used to determine the ITBS/TAP level. The nominal grade is the public school grade in which the student would normally be enrolled in based on the child's month and year of birth.

As shown in Table 3.2, almost one fourth of the home school students (24.5%) are enrolled one or more grades above their nominal grade. While comparable figures nationally do not exist, one research director in a large school district estimated that less than 5% of their students are enrolled above grade level.

Table 3.2
Home School Students Classified

by Discrepancy Between
Enrolled and Nominal Grade

Enrolled minus Nominal Grade	Frequency	Percent
-2	58	0.3%
-1	1,019	5.1
0	13,931	69.8
+1	4,637	23.2
+2	199	1.0
+3	58	0.3

Percentages do not sum to 100% due to a small percentage of students outside this range.

Overall Achievement

Table 3.3 shows the median scaled score (DSS score) for home school students on the *Composite with Computation, Reading Total, Language, Mathematics Total with Computation, Social Studies*, and *Science* subtest scores by grade. The corresponding percentiles shown in the table are the within grade percentile scores for the nation that correspond to the given scaled scores. For example, home school students in Grade 3 have a median composite scaled score of 207 which corresponds to the 81st percentile nationwide. The median home school student in third grade out- performs 81% of the third graders nationwide. As an additional comparison, we provide the national median for each grade in the last column. By definition this is the 50th percentile of students nationwide.

Table 3.3
Median Scaled Scores (corresponding national percentile)
by Subtest and Grade for Home School Students

Grade	N	Composite	Reading	Language	Math	Soc. Stud.	Science	National Median
1	1504	170 (91)	174 (88)	166 (82)	164 (81)	166 (80)	164 (78)	150 (50)
2	2153	192 (90)	196 (89)	186 (80)	188 (85)	189 (81)	195 (86)	168 (50)
3	2876	? 81)	210 (83)	195 (62)	204 (78)	205 (76)	214 (83)	185 (50)
4	2625	222 (76)	228 (83)	216 (67)	220 (76)	216 (68)	232 (81)	200 (50)
5	2564	243 (79)	244 (83)	237 (69)	238 (76)	236 (71)	260 (86)	214 (50)
6	2420	261 (81)	258 (82)	256 (73)	254 (76)	265 (81)	273 (84)	227 (50)
7	2087	276 (82)	277 (87)	276 (77)	272 (79)	276 (79)	282 (81)	239 (50)
8	1801	288 (81)	288 (86)	291 (79)	282 (76)	290 (79)	289 (78)	250 (50)
9	1164	292 (77)	294 (82)	297 (77)	281 (68)	297 (76)	292 (73)	260 (50)
10	775	310 (84)	314 (89)	318 (84)	294 (72)	318 (83)	310 (79)	268 (50)
11	317	310 (78)	312 (84)	322 (83)	296 (68)	318 (79)	314 (77)	275 (50)
12	66	326 (86)	328 (92)	332 (85)	300 (66)	334 (84)	331 (82)	28 (50)

It is readily apparent from Table 3.3 that the median scores for home school students are well above their public/private school counterparts in every subject and in every grade. The corresponding percentiles range from the 62nd to the 91st percentile; most percentiles are between the 75th and the 85th percentile. The lowest percentiles are in *Mathematics Total with Computation* subtest (labeled *Math* in the tables); the highest in *Reading Total*. While the grade-to-grade increase in national medians is 13 DSS points in the lower grades, the annual increase for home school students is about 16 points. These are exceptional scores and exceptional grade-to-grade gains.

As shown in Table 3.4, the same superiority of median scaled scores holds when comparing home school students to students enrolled in Catholic/Private schools. The Catholic/Private school percentiles corresponding to median scaled scores range from the 53rd percentile to the 89th percentile; most are between the 65th to 75th percentile. In every area and every grade, the median scores for home school students exceed the median scores of students enrolled in Catholic/Private schools.

Table 3.4

Median Scaled Scores of Home School Students (Corresponding Catholic/Private School Percentile) by Subtest and Grade

Grade	Composite	Reading	Language	Math	Soc. Stud.	Science
1	170 (89)	174 (86)	166 (80)	164 (80)	166 (73)	164 (75)
2	192 (88)	196 (84)	186 (74)	188 (81)	189 (81)	195 (85)
3	207 (74)	210 (74)	195 (55)	204 (71)	205 (69)	214 (80)
4	222 (72)	228 (72)	216 (58)	220 (69)	216 (56)	232 (76)
5	243 (71)	244 (72)	237 (60)	238 (68)	236 (60)	260 (82)
6	261 (71)	258 (71)	256 (58)	254 (65)	265 (72)	273 (77)
7	276 (72)	277 (77)	276 (63)	272 (70)	276 (68)	282 (73)
8	288 (72)	288 (75)	291 (65)	282 (68)	290 (68)	289 (67)
9	292 (63)	294 (70)	297 (61)	281 (56)	297 (63)	292 (59)
10	310 (71)	314 (81)	318 (71)	294 (57)	318 (72)	310 (66)
11	310 (63)	312 (72)	322 (69)	296 (56)	318 (67)	314 (63)
12	326 (74)	328 (81)	332 (71)	300 (53)	334 (74)	331 (72)

The relationship between median composite scaled scores for home school students, Catholic/Private school students, and the nation is shown in the Figure 1. At each grade level, the test performance of Catholic/Private school students is above the national performance levels, especially in the higher grade levels. Also at each grade level, the performance of home school students is above the performance levels of students enrolled in Catholic/Private schools. The differences between these groups are considerable. For example, the median score for 7th graders nationwide is 239; for Catholic/Private school students the median is 257; for home school students the median is 276. Another way to look at this chart is to examine the grades corresponding to a given composite score. A composite scale score of 250, for example, is typical of a home school student in Grade 6, a Catholic/Private school student in Grade 7 and students nationwide in the later stages of grade 8.

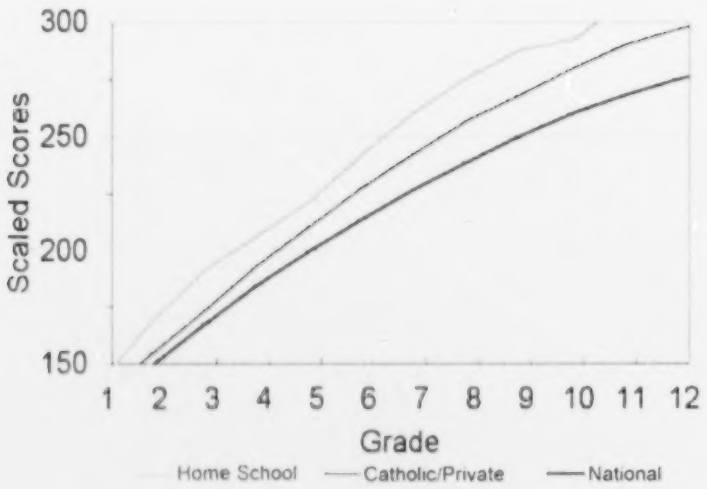

Figure 1. Academic Achievement of Home School, Catholic/Private and the Nation's Students

The Grade Equivalent Scores (GES) corresponding to the median DSS scaled scores for home school students are shown in Table 3.5. These GES scores indicate the performance levels of home school students in terms of student grade placement nationwide. The median composite scaled score for fourth-grade home school students, for example, is 217. This is comparable to the median score expected of students nationwide in the ninth month of fifth grade. Compared to students nationwide, the median fourth-grade home school student test performance is 1.1 grade equivalents above his public/private school peers. By 8th grade, the median performance of home school students on the ITBS/TAP is almost four grade equivalents above that of students nationwide. Similar trends hold for all subject areas.

The reader should recognize that the grade equivalent scale tends to magnify differences at the high school level and that the percentile scale is more meaningful in these higher grades. While 50% of eighth grade home school students have scores that are 4 grade equivalents above the public school median, so do some 20% of eighth grade students in public schools. The revealing statistics are the percentiles which are consistently high across grade levels and subject areas.

Table 3.5
Median Scaled Scores (corresponding Grade Equivalent Scores) by Subtest and Nominal Grade for Home School Students

Grade	Composite	Reading	Language	Math	Soc. Stud.	Science	National Median
1	170 (2.9)	174 (3.1)	166 (2.6)	164 (2.6)	166 (2.7)	164 (2.6)	150 (1.8)
2	192 (4.1)	196 (4.5)	186 (3.8)	188 (4.0)	189 (4.0)	195 (4.5)	168 (2.8)
3	207 (5.1)	210 (5.5)	195 (4.4)	204 (5.2)	205 (5.1)	214 (5.8)	185 (3.8)
4	222 (6.2)	228 (6.9)	216 (5.9)	220 (6.4)	216 (5.9)	232 (7.3)	200 (4.8)
5	243 (8.3)	244 (8.3)	237 (7.6)	238 (7.7)	236 (7.6)	260 (9.8)	214 (5.8)
6	261 (10.1)	258 (9.6)	256 (9.4)	254 (9.1)	265 (10.4)	273 (11.6)	227 (6.8)
7	276 (11.9)	277 (12.0)	276 (11.9)	272 (11.3)	276 (11.9)	282 (12.5)	239 (7.8)
8	288 (12.9)	288 (12.9)	291 (-)	282 (12.5)	290 (-)	289 (-)	250 (8.8)
9	292 (-)	294 (-)	297 (-)	281 (12.4)	297 (-)	292 (-)	260 (9.8)
10	310 (-)	314 (-)	318 (-)	294 (-)	318 (-)	310 (-)	268 (10.8)
11	310 (-)	312 (-)	322 (-)	296 (-)	318 (-)	314 (-)	275 (11.8)
12	326 (-)	328 (-)	332 (-)	300 (-)	334 (-)	331 (-)	280 (12.8)

(The - sign indicates the scaled scores are beyond the effective range for GES conversion.)

The grade equivalent score comparisons for home school students and the nation are shown in Figure 2. In grades one through four, the median ITBS/TAP composite scaled scores for home school students are a full grade above that of their public/private school peers. The gap starts to widen in grade five. By the time home school students reach grade 8, their median scores are almost 4 grade equivalents above their public/private school peers.

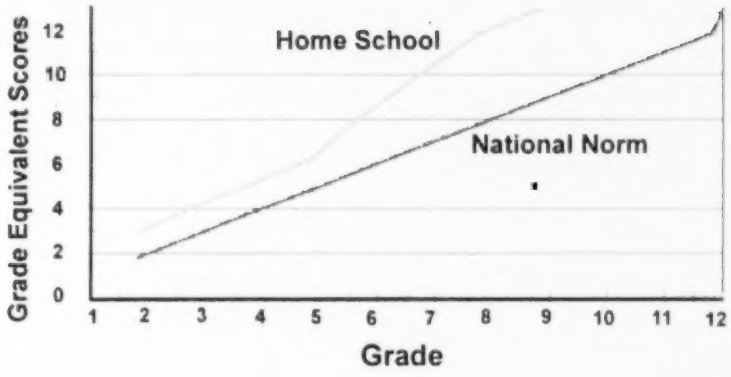

Figure 2. Home School Students Compared to the National Norm Group in Grade Equivalent Units

Years of Home Schooling

Almost half of the respondents (47%) indicated that they have been home schooled for each grade prior to their current grade, i.e., their entire academic life. Table 3.6 shows that students who are home schooled for their entire academic life do better than students who have been home schooled for only a few years *(F academic life =108.2; df=1,9750; p<.01)*. There is also a significant interaction between grade and years home schooled *(F=7.4; df=9,9750, p< .01)*, indicating that the effectiveness of home schooling varies with the student's grade. The differences are most meaningful starting in Grade 6.

[All F ratios reported here are from a two-way analysis of variance with composite scaled scores as the dependent measure, grade as a blocking variable, and one independent variable. Because the students are within families, the dataset was trimmed by randomly selecting one child from each family. Had the full dataset been used, the variance of the children within a family would have been artificially smaller than the variance of among children in the population of inference. This would have increased the risk of Type I error, showing significance when significance may not be so. To assure adequate cell sizes, the analyses were also restricted to Grades 1 through 10. A statistically significant difference only means that there is evidence of a difference in population values. The difference may be small and not meaningful. "n.s." is used to indicate not significant.]

One reviewer questioned whether this significant difference was due to life-long home schooling or was life-long home schooling serving as a proxy for parent education or income. The correlation of life-long home schooling and whether either parent has a college degree is .12, indicating there is some, but not a great deal of overlap between these variables. The correlation with income level was .02, indicating no relationship. Thus, whether a student is home schooled his or her entire life appears to be significantly related to achievement.

Table 3.6
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Number of Grades Home Schooled and Grade

Grade	1	2	3	4	5	6	7	8	9	10
Home schooled entire academic life										
Mean	170	195	208	224	244	265	278	291	300	314
sd	12	16	17	20	23	23	25	26	27	23
N	479	743	863	608	552	444	319	242	159	100
%ile	92	95	85	81	82	85	83	84	83	86
Home schooled some grades										
Mean	168	192	206	222	241	256	270	282	288	299
sd	11	15	18	20	24	26	27	30	30	32
N	221	428	616	666	681	688	628	608	436	287
%ile	90	92	82	79	79	78	77	78	73	75
Difference	2	3	2	2	3	9	8	9	12	15

[The percentiles (%ile) shown in this and the following tables are the within-grade percentiles corresponding to the mean composite scale scores, differences and ranges refer to differences in and ranges of mean composite scale scores, sd refers to standard deviation, N is the number of students within each cell.]

Enrolled in a Full-Service Curriculum

There is no significant difference in the mean composite scaled scores of home school students enrolled in a full-service curriculum and home school students not so enrolled. As shown in Table 3.7, the means are quite close at all grade levels *(F enrollment=.24; df=1,9750; n.s.)*.

Table 3.7
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Full-service Curriculum Status and Grade

Grade	1	2	3	4	5	6	7	8	9	10
Not enrolled in a full-service curriculum										
Mean	170	194	207	223	243	260	272	284	291	302
sd	12	15	17	20	23	25	26	29	30	31
N	646	1109	1361	1214	1145	1042	847	771	495	320
%ile	92	94	83	80	81	81	79	79	76	78
Enrolled in a full-service curriculum										
Mean	167	199	209	220	241	256	272	286	289	306
sd	13	17	18	21	24	29	31	30	30	28
N	54	63	118	60	89	89	101	79	100	67
%ile	89	97	86	76	79	78	79	80	74	81
Difference	3	-5	-2	3	2	4	0	-2	-2	-4

Student Gender

There are no significant differences in the achievement levels of male versus female home school students *(F for gender=.01; df=1,9750; n.s.).* As shown in Table 3.8, the means are virtually identical at all grade levels.

Table 3.8
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Grade and Gender

Grade	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Males										
Mean	170	195	208	223	243	260	271	285	288	303
sd	12	15	18	19	23	25	26	30	33	33
N	355	576	749	639	600	597	479	428	294	181
%ile	92	95	85	80	81	81	78	80	73	78
Females										
Mean	169	193	207	223	242	260	274	284	293	303
sd	12	16	17	21	24	25	26	28	26	28
N	345	595	730	634	634	535	469	422	302	206
%ile	91	93	83	80	80	81	80	79	77	78
Difference	1	2	1	0	1	0	-3	1	-5	0

Money Spent on Educational Materials

There is a significant difference in the achievement levels of home school

students depending on the amount of money spent per child on educational materials including textbooks, lesson materials, tutoring, enrichment services, and testing (see Table 3.9). At almost every grade level, students in families spending $600 or more outperform students in families spending less than $200 *(F for money spent=41.1; df=3,9585; p <.01)*. There is also a significant interaction between grade and money spent *(F=2.7; df=27,9585; p <.01)* indicating that the amount of money spent on education makes a bigger difference at the higher grade levels. The correlation between money spent on educational materials and income is significant *(r=.24, p <.01)*, indicating that this effect may be due to family characteristics rather than expenditures.

Table 3.9
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Money Spent on Educational Materials per Student and Grade

Grade	1	2	3	4	5	6	7	8	9	10
$600 or more										
mean	171	195	208	227	245	264	278	289	298	307
sd	11	16	17	21	23	25	25	30	27	32
N	152	236	408	329	317	306	289	260	226	147
%ile	93	95	85	84	83	84	83	83	81	81
$400-599										
mean	169	196	211	222	245	261	271	286	291	306
sd	13	15	17	19	22	25	26	25	31	30
N	160	286	376	263	268	253	261	179	105	69
%ile	91	96	88	79	83	82	78	80	76	81
$200-399										
mean	171	194	206	220	241	257	270	280	284	299
sd	12	16	18	20	23	25	26	30	32	29
N	252	438	456	469	410	375	249	281	186	119
%ile	93	94	82	76	79	79	77	76	70	75
$199 or less										
mean	166	191	203	222	238	258	265	285	284	299
sd	11	15	17	20	26	24	27	28	25	30
N	130	163	219	204	220	186	137	122	74	45
%ile	87	91	78	79	76	80	73	80	70	75
Range	5	4	8	7	7	7	13	9	14	8

Family Income

There is a significant difference in the achievement of home school students based on family income. As shown in Table 3.10, students in higher income families consistently have higher mean composite scaled scores *(F for income = 79.1; df=3,9186; p < .01)*. There is also a significant interaction of income and grade *(F =2.6; df=27,9186; p<.01)*. Achievement differences due to income are more pronounced for students in higher grades.

Table 3.10
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Family Income and Student Grade

Grade	1	2	3	4	5	6	7	8	9	10
$70,000 or more										
mean	173	196	211	225	247	264	278	292	301	306
Sd	10	15	16	20	23	24	25	28	27	29
N	188	300	370	350	296	300	226	202	139	80
%ile	95	96	88	82	85	84	83	85	84	81
$50,000 -69,999										
mean	169	195	209	224	243	261	274	287	293	306
Sd	11	15	17	18	23	24	23	26	29	34
N	165	285	407	352	316	293	239	214	135	109
%ile	91	95	86	81	81	82	80	81	77	81
$35,000 -49,999										
mean	169	193	206	222	241	258	270	281	292	305
sd	12	16	19	21	21	23	26	27	30	30
N	164	266	327	251	269	262	264	212	141	96
%ile	91	93	82	81	79	80	77	81	76	80
$34,999 or less										
mean	167	192	204	218	237	255	262	276	278	297
sd	14	17	17	21	24	28	29	32	30	31
N	149	232	304	245	276	228	178	181	148	66
%ile	89	92	79	74	75	77	70	73	65	74
Range	6	4	7	7	10	9	16	16	13	9

Parent Certification as a Teacher

To determine whether there is a difference in achievement for students in households where at least one parent holds a state issued teaching certificate, we analyzed the data for the 7,607 students with at least one parent that has a college degree. As shown in Table 3.11, the achievement levels across groups are remarkably similar. Controlling for grade and parent education level, there is no

significant difference in the achievement levels of home school students whose parents are certified and those that are not *(F for certification=2.9; df=1,7587; n.s.)*.

Table 3.11
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Parent Teaching Certificate and Student Grade

Grade	1	2	3	4	5	6	7	8	9	10
At least one certified parent										
Mean	172	196	212	225	245	268	278	289	299	308
sd	11	16	15	20	21	21	24	24	25	31
N	183	293	342	285	290	245	243	208	137	88
%ile	94	96	89	82	83	87	83	83	82	82
Neither parent certified										
Mean	171	195	210	225	246	263	276	291	299	309
sd	12	15	16	19	22	24	25	25	28	27
N	396	688	840	734	661	616	470	412	281	195
%ile	93	95	87	82	84	83	82	84	82	83
Difference	1	1	2	0	-1	5	2	-2	0	-1

Parent Education Levels

The National Assessment of Educational Progress has consistently shown marked differences in the performance levels of students nationwide as a function of parent's educational level. Similar differences appear in the performance levels of home school students. As shown in Table 3.12, at every grade level, children of college graduates out perform children whose parents do not have a college degree (*F=566.4; df=2,9744; p < .01*). There is also a significant interaction between grade and parent education (*F=8.7; df=18,9744; p < .01*), indicating that the effect of parent education is more pronounced in some grades. It is worthy to note that, at every grade level, the mean performance of home school students whose parents do not have a college degree is much higher than the mean performance of students in public schools. Their percentiles are mostly in the 65th to 69th percentile range.

Table 3.12
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Parent Education and Student Grade

Grade	1	2	3	4	5	6	7	8	9	10
Both parents have college degrees										
Mean	178	196	212	228	249	268	278	296	306	314
sd	11	15	15	19	21	22	25	22	24	26
N	367	640	706	567	535	501	420	325	206	137
%ile	98	96	89	85	86	87	83	88	87	86
One parent has a college degree										
Mean	172	194	208	222	242	260	275	285	293	304
sd	13	15	16	19	22	24	24	25	28	29
N	212	341	477	451	417	361	293	297	212	147
%ile	94	94	85	79	80	81	81	80	77	79
Neither parent has a college degree										
Mean	161	187	196	212	231	245	260	268	271	288
sd	10	16	17	19	25	25	28	34	27	33
N	121	191	297	255	285	270	233	231	177	104
%ile	79	87	67	66	68	67	69	66	59	67
Range	17	9	16	14	17	23	18	28	35	26

Television Watching

It was pointed out above that home school students spend significantly less time watching television than do the general population of school-age students. Like the nation as a whole, increased amounts of television viewing for home school students is associated with lower achievement test scores. Table 3.13 shows that at every grade level, there is a steady decline in achievement as the amount of television viewing increases *(F for televison viewing $=142.5$; $df=3,9685$; $p<.01$)*. The interaction of grade and amount of television viewing is also significant *($F=5.5$; $df=27,9685$; $p<.01$)*. The effects of television on achievement are more pronounced with students in higher grades.

Table 3.13
Composite Scale Score Mean, Standard Deviation and Corresponding Percentile by Amount of Television Viewing Each Week and Grade

Grade	1	2	3	4	5	6	7	8	9	10
No Television										
mean	166	199	213	227	251	271	281	294	308	307
sd	13	15	15	19	22	24	26	25	27	27
N	81	164	165	161	172	140	117	107	102	64
%ile	87	97	90	84	88	89	86	86	88	81
1 hour or less										
mean	171	196	208	225	245	263	274	288	298	308
sd	12	15	17	20	22	23	25	29	25	29
N	355	554	795	650	586	525	453	369	225	186
%ile	93	96	85	82	83	83	80	82	81	82
2 hours										
mean	169	191	205	219	238	253	268	279	278	299
sd	11	15	18	20	23	26	27	27	31	29
N	186	325	380	333	333	309	237	241	182	92
%ile	91	91	81	75	76	75	75	75	65	75
3 hours or more										
mean	169	187	203	216	233	252	269	275	281	280
sd	11	17	17	20	26	27	28	31	29	35
N	75	121	136	117	135	155	140	130	86	43
%ile	91	87	78	71	70	74	76	72	67	60
Range	5	12	10	11	18	19	13	19	30	28

Summary of Major Findings

Major findings: Demographics

- Home school parents have more formal education than parents in the general population; 88% continued their education beyond high school compared to 50% for the nation as a whole.
- The median income for home school families ($52,000) is significantly higher than that of all families with children ($36,000) in the United States.
- Almost all home school students (98%) are in married couple families. Most home school mothers (77%) do not participate in the labor force; almost all home school fathers (98%) do work.
- Home school students watch much less television than students nationwide; 65% of home school students watch one hour or less per day compared to 25% nationally.
- The median amount of money spent annually on educational

materials is about $400 per home school student.
- The distribution of home school students by grade in grades 1-6 is consistent with that of all school children. Proportionally fewer home school students are enrolled at the high school level.

Major findings: Achievement

- Almost 25% of home school students are enrolled one or more grades above their age-level peers in public and private schools.
- Home school student achievement test scores are exceptionally high. The median scores for every subtest at every grade (typically in the 70th to 80th percentile) are well above those of public and Catholic/Private school students.
- On average, home school students in grades 1 to 4 perform one grade level above their age-level public/private school peers on achievement tests.
- The achievement test score gap between home school students and public/private school students starts to widen in grade 5.
- Students who have been home schooled their entire academic life have higher scholastic achievement test scores than students who have also attended other educational programs.
- There are no meaningful differences in achievement by gender, whether the student is enrolled in a full-service curriculum, or whether a parent holds a state issued teaching certificate.
- There are significant achievement differences among home school students when classified by amount of money spent on education, family income, parent education, and television viewing.

Discussion

Incorporating the largest sample ever used to study home school students and their families, this study is a rich source of information concerning their demographics and achievement. It clearly shows that home school students and their families are a select population. Family income and education levels are well above national averages. The family structure is traditional with married couples as parents, several children, father as bread winner, and a stay-at-home mother. A large percent of home school students have a parent that has held a state-issued teaching certificate. Home school families do not spend a great deal of money on educational materials and tend not to subscribe to pre-packaged full-service curriculum programs.

In spite of the large size of this assessment, there are notable limitations to this study. Foremost, home school students and their families are not a cross-section of the United States population. The act of home schooling distinguishes this group in terms of their exceptionally strong commitment to education and children. There are major demographic differences between home school families and the general United States population. Further, it should be noted that it was not possible within the parameters of this study to evaluate whether this sample is truly representative of the entire population of

home school students.

The content of the Riverside tests is another major limitation of this study. While home schools teach the basic skill areas of reading, mathematics, social studies, and science, they do not necessarily follow the same scope, sequence, or emphasis as traditional public and private schools. The primary focus of many home schools is on religious and moral values. Home schools can and do place a greater emphasis on study skills, critical thinking, working independently, and love of learning. Public and private schools usually select the Riverside test due to its close alignment with their curriculum; home schools select the test primarily out of convenience.

We were conservative in our analysis of achievement test results. Even though some 25% of home school students are enrolled in an advanced grade level, we used current grade placement rather than the age appropriate grade placement when determining percentiles and grade equivalents. When looking at test scores, we chose the composite score with mathematics computation, even though mathematics appears to be a weaker subject for older home school students. As a result, we have probably underestimated home school academic performance levels.

Even with our conservative approach, the achievement levels of the home school students in this study are exceptional. Within each grade level and each skill area, the median scores for home school students fell between the 70th and 80th percentile of students nationwide and between the 60th and 70th percentile of Catholic/Private school students. For younger students, this is a one year lead. By the time home school students are in 8th grade, they are four years ahead of their public/private school counterparts.

Our results are consistent with previous studies of the achievement of home school students. A 1990 national home schooling survey of 1,516 families in the United States noted that, on average, home education families have parents with greater formal education, more children, and higher family income (*Home School Court Report*, 1990). Two-parent families were the norm and they were predominantly Christian. The average age of the children was just over eight years--a majority of the children had never attended public or private schools. There were equal numbers of male and female students. On standardized achievement tests, the home-schooled students performed at or above the 80th percentile on national norms in reading, listening, language, math, science, social studies, basic battery, and complete battery scores.

Calvery et.al. (1992) compared the achievement of Arkansas home schooled and public schooled students in grades 4, 7, and 10 using 6 subscales of the MAT-6. Home schooled students scored higher than their counterparts in reading, mathematics, language, total basic battery, science, and social studies at grade 4 and grade 7. They also scored significantly above public school means for grade 10 in reading, mathematics, total basic battery, science, and social studies, but scored significantly lower in language.

Ray (1997) analyzed demographic and achievement data from 5,402 home school students in 1,657 families. While Ray used a

different approach to analyze achievement data, he noted exceptionally high average achievement levels and that students with long histories of being home schooled had higher achievement scores.

Home school students did quite well in 1998 on the ACT college entrance examination. They had an average ACT composite score of 22.8 which is .38 standard deviations above the national ACT average of 21.0 (ACT, 1998). This places the average home school student in the 65th percentile of all ACT test takers.

These comparisons between home school students and students nationwide must be interpreted with a great deal of caution. This was not a controlled experiment. Students were not randomly assigned public, private or home schools. As a result, the reported achievement differences between groups do not control for background differences in the home school and general United States population and, more importantly, cannot be attributed to the type of school a child attends. This study does not demonstrate that home schooling is superior to public or private schools. It should not be cited as evidence that our public schools are failing. It does not indicate that children will perform better academically if they are home schooled. The design of this study and the data do not warrant such claims. All the comparisons of home school students with the general population and with the private school population in this report fail to consider a myriad of differences between home school and public school students. We have no information as to what the achievement levels of home school students would be had they been enrolled in public or private schools. This study simply shows that those parents choosing to make a commitment to home schooling are able to provide a very successful academic environment.

Note

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